CLAIMS

1. A method of separating sulphur dioxide from a gas (4) by means of an aqueous absorption liquid (36), in which method the gas is first passed through a contact zone (6), in which the gas (4) is mixed with a liquid (42) flowing out of an outlet box (20), and is then passed upwards through an essentially horizontal apertured plate (8) which is arranged beside the outlet box (20) and on which a flowing layer (14) of the absorption liquid is provided, characterised in that a coolant flow (CF) is fed to the outlet box (20) to be passed therethrough and flow out in the contact zone (6), and an absorption liquid flow (AF), which is essentially independent of the coolant flow (CF), is fed to the apertured plate (8) to form said flowing layer (14), which separates sulphur dioxide from the gas (4).

2. A method as claimed in claim 1, in which the outlet box (20) is elongate and extends along a lateral edge (22) of the apertured plate (8), the absorption liquid flow (AF) being passed over the apertured plate (8) in a direction (AL) which is essentially parallel to the longitudinal direction of the outlet box (20).

3. A method as claimed in claim 1 or 2, in which the coolant flow (42) flowing out of the outlet box (20) is collected in a container (34) containing liquid (36), whose liquid surface (38) is located at a level below the contact zone (6), a passage (40), through which the gas (4) is passed horizontally under the outlet box (20), extending between the liquid surface (38) and the outlet box (20), and a parameter, which is representative of the level of the liquid surface (38), and thus the height (H) of the passage, being controlled in such a manner that the average velocity of the gas (4) in the passage (40) is in the range of 5-35 m/s.

4. A method as claimed in any one of the preceding claims, in which the coolant flow (CL) flowing out of the outlet box (20) and the absorption liquid flow (AL) flowing out of the apertured plate (8) are collected in a common container (34).

5. A method as claimed in claim 4, in which the coolant flow (CF) and the absorption liquid flow (AF) are fed from the common container (34).

6. A method as claimed in any one of the preceding claims, in which the ratio of the hydrostatic liquid pressure in the outlet box (20) to the pressure difference between a first point (A) just before the contact zone (6) and a second point (B) above the liquid surface (48) in the outlet box (20) is controlled by means of the coolant flow (CF) in such a manner that said hydrostatic liquid pressure is greater than said pressure difference.

7. A method as claimed in any one of the preceding claims, in which the flue gas (4) is passed essentially horizontally under the outlet box (20).

8. A device for separating sulphur dioxide from a gas (4) by means an aqueous absorption liquid, said device comprising

a) an inlet (2) for gas (4) containing sulphur dioxide and an outlet (18) for gas (16), from which sulphur dioxide has been separated,

b) an essentially horizontal apertured plate (8) which is mounted between the inlet (2) and the outlet (18) and which is arranged to allow passage from below of gas (4) containing sulphur dioxide and to carry, on its upper side (12), a flowing layer (14) of the absorption liquid,

c) at least one outlet box (20) which is arranged to be passed by liquid (36) and which is arranged beside the apertured plate (8),

d) a distributing means (32) which is arranged in the outlet box (20) to distribute liquid in the gas (4)

coming from the inlet (2), before the gas is passed upwards and through the apertured plate (8),

c h a r a c t e r i s e d in that the device also comprises

e) a first pumping means (50) for feeding a coolant flow (CF) to the outlet box (20),

f) a second pumping means (62) for feeding an absorption liquid flow (AF), which is essentially independent of the coolant flow (CF), to the apertured plate (8) for forming the flowing layer (14).

9. A device as claimed in claim 8, in which a container (34) is arranged to collect the coolant flow (CL) flowing out of the outlet box (20), the container (34) containing liquid (36), whose liquid surface (38) is located under the outlet box (20) and thus forms a passage (40) for gas (4) between the liquid surface (38) and the outlet box (20).

10. A device as claimed in claim 9, in which a common container (34) is arranged to collect the coolant flow (CL) flowing out of the outlet box (20) and the absorption liquid flow (AL) flowing out of the apertured plate (8).

11. A device as claimed in claim 10, in which the liquid surface (38) in the container (34) extends both under essentially the entire apertured plate (8) and under essentially the entire outlet box (20).

12. A device as claimed in any one of claims 8-11, in which the apertured plate (8) has the shape of a rectangular plate (8) with a first lateral edge (22) which is parallel to the outlet box (20), and a second lateral edge (72) which is perpendicular to the first lateral side edge (22), the first pumping means (50) as well as the second pumping means (62) consisting of mammoth pumps (50, 62) which are arranged in succession along a line parallel to the second lateral edge (72).

13. A device as claimed in any one of claims 8-11, in which the apertured plate (108) has the shape of a

rectangular plate (108) which is divided into two parts (109, 111) by the second pumping means (162), which seen from above has the form of an elongate mammoth pump (162), which is arranged to distribute the absorption liquid flow over the two parts (109, 111), the outlet box (120) being elongate and arranged along a first lateral edge (122) of the apertured plate (108) and forming an essentially right angle to the longitudinal direction of the mammoth pump (162).

14. A device as claimed in claim 13, which has a first and a second apertured plate (208A, 208B) which each have the shape of a substantially rectangular plate (208A, 208B), which is divided into two parts (209A, 211A and 209B, 211B respectively) by a second pumping means each (262A and 262B respectively), seen from above in the form of an elongate mammoth pump (262A and 262B respectively), which is arranged to distribute the absorption liquid flow over the two parts (209A, 211A and 209B, 211B respectively), a first and a second elongate outlet box (220A, 220B) being arranged along a first lateral edge (222A and 222B respectively) of the first and the second apertured plate respectively (208A and 208B respectively) and forming a substantially right angle to the longitudinal direction of the respective mammoth pumps (262A and 262B respectively), an inlet gap (221) for incoming gas (204) extending between the two outlet boxes (220A, 220B).

15. A device as claimed in claim 8 or 9, which has a first container (334), which is arranged to collect the coolant flow flowing out of the outlet box (320), and a second container (335), which is arranged to collect at least part of the absorption liquid flow flowing out of the apertured plate (308).

16. A device as claimed in claim 15, which has a third pumping means (351) which is arranged to feed, through a conduit (353), liquid from the first container (334) to the second container (335).

17. A device as claimed in claim 15 or 16, in which the first pumping means (350) and the second pumping means (362) are arranged to feed the coolant flow and the absorption liquid flow, respectively, from the second container (335).

18. A device as claimed in any one of claims 8-17, in which the distributing means (32; 132, 133) comprises at least one nozzle (32; 132, 133), whose characteristic measure, such as a minimum hole diameter (D) or a minimum gap width (V), is 1-8 cm.

19. A device as claimed in any one of claims 8-18, in which the outlet box (20) has a bottom (30) which is located essentially on the same level as the underside (46) of the apertured plate (8).

20. A device a claimed in any one of claims 8-19, which is arranged to conduct absorption liquid over the apertured plate (8) from an inlet zone (78) to an outlet zone (480), an adjustable throttle valve (492) for adjusting the thickness of the layer (414) of absorption liquid being arranged in the outlet zone (480).